CLAIMS:

1. A magnetic device having a magnetic feature, the magnetic feature comprising:

a magnetic portion comprising a magnetic material;

a region of non-magnetic material adjacent to the magnetic portion; and

a stop layer disposed above the region of non-magnetic material, defining a planar upper boundary of the magnetic portion.

2. The magnetic feature of claim 1, wherein the magnetic region has a width of less than about 300 nanometers and a height of less than about 300 nanometers.

3. The magnetic feature of claim 2, wherein the stop layer comprises a non-magnetic material.

4. The magnetic feature of claim 1, wherein the stop layer comprises a non-magnetic material.

5. The magnetic feature of claim 4, wherein the stop layer is formed of a material from a group consisting of platinum, gold, chromium, ruthenium, diamond, tungsten, SiC, SiO_xN_y, NiCu, and combinations thereof.

6. The method of claim 4, wherein the stop layer exhibits a removal rate selectivity versus both the non-magnetic material and the magnetic material of at least about eighty-to-one.

7. A method of forming a magnetic device having a magnetic feature, the method comprising:

forming a structure that includes a magnetic portion between adjacent regions of non-magnetic material, a stop layer over the adjacent regions, and excess material covering the stop layer and the magnetic portion; and

planarizing by chemical-mechanical polishing until the stop layer is reached to define an upper boundary of the magnetic portion that is coplanar with an upper surface of the stop layer.

8. The method of claim 7, wherein the magnetic region is formed having a width of less than about 300 nanometers and a height of less than about 300 nanometers.

9. The method of claim 7, wherein the stop layer comprises a non-magnetic material.

10. The method of claim 9, wherein the stop layer consists of a group comprising platinum, gold, chromium, ruthenium, diamond, tungsten, SiC, SiO_xN_y, NiCu, and such derivatives.

11. The method of claim 7, wherein the determination of when the stop layer is reached is based in part as a function of removal rate selectivity of the stop layer versus the excess material.

12. The method of claim 11, wherein the removal rate selectivity of the stop layer versus the material deposited over the stop layer is at least about eighty-to-one.

13. The method of claim 11, wherein the determination of when the stop layer is reached is further based in part as a function of a motor current of a chemical-mechanical polishing apparatus.

14. The method of claim 11, wherein the determination of when the stop layer is reached is further based in part as a function of a change in surface optical reflectivity.

15. The method of claim 11, wherein the determination of when the stop layer is reached is further based in part as a function of an induced eddy current.

16. The method of claim 7, wherein the forming of the structure comprises:

forming the magnetic portion;

depositing a layer of the non-magnetic material to form the adjacent regions;

depositing the stop layer over the adjacent regions; and

depositing the excess material over the stop layer and the magnetic portion.

17. The method of claim 16, wherein the forming of the magnetic feature comprises:

depositing a layer of magentic material;

depositing a mask layer over the layer of the magnetic material; and

etching the mask layer and the layer of magnetic material to form the magnetic portion.

18. The method of claim 16, wherein the determination of when the stop layer is reached is based in part as a function of removal rate selectivity of the stop layer verus the excess material.

19. The method of claim 18, wherein the determination of when the stop layer is reached is further based in part as a function of a motor current of a chemical-mechanical polishing apparatus.

20. The method of claim 18, wherein the determination of when the stop layer is reached is further based in part as a function of a change in surface optical reflectivity.

21. The method of claim 18, wherein the determination of when the stop layer is reached is further based in part as a function of an induced eddy current.

22. The method of claim 7, wherein the forming of the structure comprises:

depositing a layer of the non-magnetic material;

depositing the stop layer over the layer of the non-magnetic material;

patterning a trench within the stop layer and the layer of non-magnetic material; and

depositing magnetic material in the trench to form the magnetic portion.

23. The method of claim 22, wherein the determination of when the stop layer is reached is based in part as a function of removal rate selectivity of the stop layer verus the excess material.

24. The method of claim 23, wherein the determination of when the stop layer is reached is further based in part as a function of a motor current of a chemical-mechanical polishing apparatus.

25. The method of claim 23, wherein the determination of when the stop layer is reached is further based in part as a function of a change in surface optical reflectivity.

26. The method of claim 23, wherein the determination of when the stop layer is reached is further based in part as a function of an induced eddy current.

27. A method of forming a magnetic device having magnetic feature, the method comprising:

forming a structure that includes a magnetic portion between adjacent regions of non-magnetic material, a stop layer over the adjacent regions, and excess material covering the stop layer and the magnetic portion, wherein the magnetic portion has a width of less than about 300 nanometers and a height of less than about 300 nanometers; and

planarizing by chemical-mechanical polishing until and end point is reached to define an upper boundary of the magnetic portion that is coplanar with an upper surface of the stop layer, wherein the end point is determined in part as a function of removal rate selectivity of the stop layer verus the excess material.

28. The method of claim 27, wherein the stop layer comprises a non-magnetic material.

29. The method of claim 28, wherein the stop layer consists of a group comprising platinum, gold, chromium, ruthenium, diamond, tungsten, SiC, SiO_xN_y, NiCu, and such derivatives.

30. The method of claim 27, wherein the endpoint is further determined in part as a function of a motor current of a chemical-mechanical polishing apparatus.

31. The method of claim 27, wherein the end point is further determined in part as a function of a change in surface optical reflectivity.

32. The method of claim 27, wherein the end point is further determined in part as a function an induced eddy current.

33. The method of claim 27, wherein the forming of the structure comprises:

depositing a layer of magnetic material;

depositing a mask layer over the layer of the magnetic material; and

etching the mask layer and the layer of magnetic material to form the magnetic portion;

depositing a layer of the non-magnetic material to form the adjacent regions;

depositing the stop layer over the adjacent regions; and

depositing the excess material over the stop layer and the magnetic portion.

34. The method of claim 33, wherein the endpoint is further determined in part as a function of a motor current of a chemical-mechanical polishing apparatus.

35. The method of claim 33, wherein the end point is further determined in part as a function of a change in surface optical reflectivity.

36. The method of claim 33, wherein the end point is further determined in part as a function of an induced eddy current.

37. The method of claim 27, wherein the forming of the structure comprises:

depositing a layer of the non-magnetic material;

depositing the stop layer over the layer of the non-magnetic material;

patterning a trench within the stop layer and the layer of non-magnetic material; and

depositing magnetic material in the trench to form the magnetic portion.

38. The method of claim 37, wherein the endpoint is further determined in part as a function of a motor current of a chemical-mechanical polishing apparatus.

39. The method of claim 37, wherein the end point is further determined in part as a function of a change in surface optical reflectivity.

40. The method of claim 37, wherein the end point is further determined in part as a function of an induced eddy current.